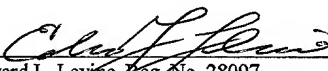


IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of)
DAVID H. DeYOUNG et al) Examiner not yet assigned
Serial No. not yet assigned) Group Art Unit not yet assigned
Filed concurrently herewith)
For Aluminum Alloys Having Improved)
Cast Surface Quality)

Amendment

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on January 18, 2002.


Edward L. Levine, Reg. No. 28097
Date of Signature: January 18, 2002

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to initial examination of and calculation of the fee for the above-identified application, Applicant submits the following amendments and remarks:

IN THE SPECIFICATION:

Pursuant to 37 C.F.R. § 1.121, the following are clean copies of the replacement paragraphs. Marked-up versions of these paragraphs are attached on a separate sheet.

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Please insert the following paragraph before paragraph number [0001] on page 1:

[0001] This application is a divisional of U.S. patent application serial number 09/685,283, filed October 10, 2000.

IN THE CLAIMS:

Please cancel claims 1 – 15, 17, 18 and 20 without prejudice.

Please amend claim 16 as follows:

16. (Once Amended) An AA7000 series aluminum alloy having improved as-cast surface quality, said alloy is comprised of from about 5 to about 5,000 ppm calcium, from about 0.001% to about 0.25% grain refiners, and being essentially beryllium-free.

Please add new claims 22 - 63 as follows:

22. The alloy of claim 16, wherein the concentration of calcium is from about 5 to about 1,000 ppm.

23. The alloy of claim 16, wherein the concentration of calcium is from about 10 to about 750 ppm calcium.

24. The alloy of claim 16, wherein the concentration of calcium is from about 15 to about 500 ppm calcium.

25. The alloy of claim 16, wherein the concentration of grain refiners is from about 0.1 to about 0.25 wt.%.

26. The alloy of claim 16, wherein titanium is a grain refiner and the concentration of titanium is from about 0.0002 to about 0.20 wt.%.

27. The alloy of claim 16, wherein titanium is a grain refiner and the concentration of titanium from about 0.0003 to about 0.10 wt.%.

28. The alloy of claim 16, wherein boron is a grain refiner and the concentration of boron is about from 0.0001 to about 0.03 wt.%.

29. The alloy of claim 16, wherein boron is a grain refiner and the concentration of boron is about from about 0.0001 to about 0.01 wt.%.

30. The alloy of claim 16, wherein boron is a grain refiner and the concentration of boron is about from about 0.0003 to about 0.005 wt.%.

31. The alloy of claim 16, wherein carbon is a grain refiner and the concentration of carbon is about from about 0.00001 to about 0.001 wt.%.

32. The alloy of claim 16, wherein carbon is a grain refiner and the concentration of carbon is about from about 0.000015 to about 0.0004 wt.%.

33. The alloy of claim 16, wherein titanium is a grain refiner at a concentration from about 0.0002 to about 0.20 wt.% and boron is a grain refiner at a concentration from about 0.0001 to about 0.03 wt.%.

34. The alloy of claim 16, wherein titanium is a grain refiner at a concentration from about 0.0002 to about 0.20 wt.% and carbon is a grain refiner at a concentration from about 0.00001 to about 0.001 wt.%.

35. The alloy of claim 34, wherein the concentration of calcium is from about 8 ppm to about 14 ppm.

36. An AA7050-type aluminum alloy having improved as-cast surface quality, said alloy comprising from about 5 to about 5,000 ppm calcium, from about 0.001 to about 0.25 wt.% grain refiners, and being essentially beryllium-free.

37. The alloy of claim 36, wherein the concentration of calcium is from about 15 to about 500 ppm calcium.

38. The alloy of claim 36, wherein the grain refiners are selected from the group consisting of titanium, strontium, boron and carbon.

39. The alloy of claim 36, wherein titanium is a grain refiner at a concentration from about 0.0002 to about 0.20 wt.% and boron is a grain refiner at a concentration from about 0.0001 to about 0.03 wt.%.

40. The alloy of claim 36, wherein titanium is a grain refiner at a concentration from about 0.0002 to about 0.20 wt.% and carbon is a grain refiner at a concentration from about 0.00001 to about 0.001 wt.%.

41. The alloy of claim 40, wherein the concentration of calcium is from about 8 ppm to about 14 ppm.

42. An ingot cast from the aluminum alloy of claim 36.

43. An aluminum alloy having improved as-cast surface quality, said alloy consisting essentially of: about 5.7 to about 6.7 wt.% zinc, about 2.0 to about 2.6 wt.% copper, about 1.9 to about 2.6 wt.% magnesium, about 0.08 to 0.15 about zirconium, about 5 to about 5,000 ppm calcium, about 0.001 to

about 0.25 wt.% grain refiners, the balance essentially aluminum with incidental elements and impurities, and being essentially beryllium-free.

44. The alloy of claim 43, wherein the concentration of calcium is from about 15 to about 500 ppm calcium.

45. The alloy of claim 43, wherein the grain refiners are selected from the group consisting of titanium, strontium, boron and carbon.

46. The alloy of claim 43, wherein titanium is a grain refiner at a concentration from about 0.0002 to about 0.20 wt.% and boron is a grain refiner at a concentration from about 0.0001 to about 0.03 wt.%.

47. The alloy of claim 43, wherein titanium is a grain refiner at a concentration from about 0.0002 to about 0.20 wt.% and carbon is a grain refiner at a concentration from about 0.00001 to about 0.001 wt.%.

48. The alloy of claim 47, wherein the concentration of calcium is from about 8 ppm to about 14 ppm.

49. An ingot cast from the aluminum alloy of claim 43.

50. An AA7055-type aluminum alloy having improved as-cast surface quality, said alloy comprising from about 5 to about 5,000 ppm calcium, from about 0.001 to about 0.25 wt.% grain refiners, and being essentially beryllium-free.

51. The alloy of claim 50, wherein the concentration of calcium is from about 15 to about 500 ppm calcium.

52. The alloy of claim 50, wherein the grain refiners are selected from the group consisting of titanium, strontium, boron and carbon.

53. The alloy of claim 50, wherein titanium is a grain refiner at a concentration from about 0.0002 to about 0.20 wt.% and boron is a grain refiner at a concentration from about 0.0001 to about 0.03 wt.%.

54. The alloy of claim 50, wherein titanium is a grain refiner at a concentration from about 0.0002 to about 0.20 wt.% and carbon is a grain refiner at a concentration from about 0.00001 to about 0.001 wt.%.

55. The alloy of claim 54, wherein the concentration of calcium is from about 8 ppm to about 14 ppm.

56. An ingot cast from the aluminum alloy of claim 50.

57. An aluminum alloy having improved as-cast surface quality, said alloy consisting essentially of: about 7.6 to about 8.4 wt.% zinc, about 2.0 to about 2.6 wt.% copper, about 1.8 to about 2.3 wt.% magnesium, about 0.08 to about 0.25 zirconium, about 5 to about 5,000 ppm calcium, about 0.001 to about 0.25 wt.% grain refiners, the balance essentially aluminum with incidental elements and impurities, and being essentially beryllium-free.

58. The alloy of claim 57, wherein the concentration of calcium is from about 15 to about 500 ppm calcium.

59. The alloy of claim 57, wherein the grain refiners are selected from the group consisting of titanium, strontium, boron and carbon.

60. The alloy of claim 57, wherein titanium is a grain refiner at a concentration from about 0.0002 to about 0.20 wt.% and boron is a grain refiner at a concentration from about 0.0001 to about 0.03 wt.%.

61. The alloy of claim 57, wherein titanium is a grain refiner at a concentration from about 0.0002 to about 0.20 wt.% and carbon is a grain refiner at a concentration from about 0.00001 to about 0.001 wt.%.

62. The alloy of claim 61, wherein the concentration of calcium is from about 8 ppm to about 14 ppm.

63. An ingot cast from the aluminum alloy of claim 57.

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REMARKS

During prosecution in co-pending patent application Serial No. 09/685,283 claims 16-21 were subject to a restriction requirement and subsequently cancelled by Applicant without prejudice. The above-identified Application is a divisional application directed to the subject matter of cancelled claims 16-21 as well as additional subject found in the original disclosure of Application Serial No. 09/685,283. The present divisional application is a retyped and reformatted version of Application Serial No. 09/685,283, and includes paragraph numbering. No new matter was added.

This Amendment includes new claims 22 - 63 in accordance with the original disclosure of Application Serial No. 09/685,283. Support for independent claim 16 which is directed to an AA7000 series aluminum alloy having improved as-cast surface quality, said alloy is comprised of from about 5 to about 5,000 ppm calcium, from about 0.001% to about 0.25% grain refiners, and being essentially beryllium-free, is found, for example, at page 6, lines 6 - 11 (i.e., paragraph [0027]) and at page 6, lines 18 - 27 (i.e., paragraph [0029]) of the present divisional application. No new matter was added.

Support for independent claims 36 and 43 which are directed to an AA7050-type aluminum alloy having improved as-cast surface quality, said alloy comprising from about 5 to about 5,000 ppm calcium, from about 0.001 to about 0.25 wt.% grain refiners, and being essentially beryllium-free is found, for example, at page 6, lines 6 - 11 (i.e., paragraph [0027]) and at page 6, lines 18 - 27 (i.e., paragraph [0029]) of the present divisional application. Independent claim 43 incorporates the composition of AA7050, as it is registered in the Revised January 2001 edition of the Aluminum Association's *Unified North American and International Registration Records*. No new matter was added.

Support for independent claims 50 and 57 which are directed to an AA7055-type aluminum alloy having improved as-cast surface quality, said alloy comprising from about 5 to about 5,000 ppm calcium, from about 0.001 to about 0.25 wt.% grain refiners, and being essentially beryllium-free is found,

for example, at page 6, lines 6 - 11 (i.e., paragraph [0027]) and at page 6, lines 18 - 27 (i.e., paragraph [0029]) of the present divisional application.

Independent claim 57 incorporates the composition of AA7055, as it is registered in the Revised January 2001 edition of the Aluminum Association's *Unified North American and International Registration Records*. No new matter was added.

Support for dependent claims 22-24, 34, 37, 41, 44, 48, 51, 55, 58 and 62 which are directed to concentration ranges of calcium in the invention is found, for example, at page 4, lines 26 - 27 (i.e., paragraph [0023]) and at page 6, lines 18 - 25 (i.e., paragraph [0029]) of the present divisional application. No new matter was added.

Support for dependent claims 19, 38, 45, 52 and 59 which are directed to the type of grain refiners in the invention is found, for example, at page 5, lines 11-15 (i.e., paragraph [0025]) of the present divisional application. No new matter was added.

Support for dependent claims 21, 42, 49, 56 and 63 which are directed to an ingot cast from the aluminum alloy of the invention is found, for example, at page 3, lines 6-8 (i.e., paragraph [0010]) and at page 7, lines 14 - 20 (i.e., paragraph [0032]) of the present divisional application. No new matter was added.

Support for dependent claim 25 that is directed to the concentration range of grain refiners in the invention is found, for example, at page 5, line 1 (i.e., paragraph [0023]) of the present divisional application. No new matter was added.

Support for dependent claims 26 - 34, 39, 40, 46, 47, 53, 54, 60 and 61 which are directed to the types and concentration ranges of grain

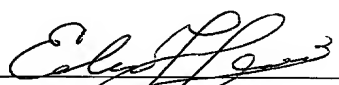
refiners in the invention is found, for example, at page 4, lines 16 - 27 (i.e., paragraph [0026]) and at page 5, lines 1 - 5 (i.e., paragraph [0026]) of the present divisional application. No new matter was added.

Respectfully submitted,



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PATENT TRADEMARK OFFICE



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208110-8025001

MARKED-UP VERSION OF CLAIMS

16. (Once Amended) An AA7000 series aluminum alloy [that contains essentially no Be and] having improved as-cast surface quality, said alloy is comprised of from about 5 to [1,000] about 5,000 ppm calcium, from about 0.001% [and up] to about 0.25% grain refiners, and being essentially beryllium-free.

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